

Serial No. 10/817,636

REMARKS

This amendment is responsive to the Official Action dated November 8, 2004.

Claims 1-7 were pending in the application. Claims 1-7 were rejected. No claims were allowed.

By way of this amendment, the Applicant has amended the specification and claim 1.

Accordingly, claims 1-7 are currently pending. Favorable reconsideration of all claims is respectfully solicited in view of the Remarks below.

I. Objection to the Specification

The Specification was objected to as requiring that the priority claim in the CROSS-REFERENCE TO RELATED APPLICATION section be updated to reflect the current status of the priority citations. The Applicant has amended the CROSS-REFERENCE TO RELATED APPLICATION section by replacing the cited pending application, US Patent Application No. 10/017,786 with US Patent No. 6,774,448.

Withdrawal of this objection is respectfully requested.

II. Nonstatutory Double Patenting Objection

Claims 1-7 of the present application were rejected under the judicially created doctrine of nonstatutory double patenting in view of claims 19-24 in US Patent No. 6,774,448.

The cited patent and the present application are both commonly owned. Accordingly, the Applicant has prepared and filed herewith a terminal disclaimer as required to overcome this rejection.

Withdrawal of this rejection is respectfully requested.

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III. Rejections under 35 USC §102:

Claims 1, 2, 4 and 7 were rejected under 35 USC §102 as being unpatentable over the US Patent No. 3,849,678, issued to Flynn. The rejection stated that Figs. 1, 2 and 3Q illustrate a photodetector 20, 30 and capacitor 22, 35A, 42 with a ground and a continuous constant bias applied to the bias terminal.

Referring to Fig. 1 of the present invention, it can be seen that there is disclosed a photodiode 10 having anode 14 and cathode 16. A transimpedance amplifier (TIA) 20 is provided having an input terminal 18 that is connected to the anode 14 of the photodiode 10, and a ground reference terminal 24 that is connected one terminal of a capacitor 22. A bias terminal 12 is connected to the cathode 16 with the second terminal of the capacitor 22 interposed between the bias terminal 12 and the cathode 16 of the photodiode 10. In the present invention, in contrast to the disclosure in Flynn, the capacitor 22 is directly connected between the cathode 16 and the ground terminal 24 of the TIA 20 creating a direct shunt path to the ground reference terminal of the TIA. In this arrangement, and accordance with the claims of the present invention as amended, a continuous bias is applied to the cathode 16 of the photodiode. The capacitor 22 is positioned to capacitively couple the bias terminal, which receives a constant bias from the power supply voltage V_{cc} , to the ground reference terminal of the TIA at the point where the un-amplified current signal generated by the photodetector is also passed to the TIA. The capacitor is thus a path to pass the constant bias AC signal from the bias terminal to ground reference terminal of the TIA therefore effectively raising the ground reference read at the TIA by the value of the applied bias signal. In operation the on-chip capacitor connected in this manner provides a shunt path that eliminates the inductance of external circuit traces between the power supply and an external capacitor while effectively factoring out the applied bias from the signal detected by the photodetector. The claims as amended clearly include the limitation of a continuously applied bias to the bias terminal 12 as well as the clear limitation that the capacitor be placed into the circuit in a manner that enables the capacitor to operate as a shunt. Clearly the only connection between the capacitor and the photodiode is provided at the cathode of the photodiode.

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Referring to Flynn (Fig. 1) there is disclosed capacitor 22, 42 that is connected in parallel with the anode 30 and cathode 20 of the photodiode 30, 20. The two terminals of the capacitor are directly connected to the two terminals of the photodiode. This clearly is a different configuration as compared to the present application and the claims as amended. In the arrangement disclosed in Flynn, the capacitor is connected to the photodiode in a manner that intended to store a charge from the photodiode within the plates of the capacitor. The capacitor when connected to the two terminals of the photodiode essentially act as a memory element for the photodiode as it is periodically read in a scanning operation. The ground connection in Flynn shown as element 64 is coupled directly to one of the common terminals of each of the capacitor and the photodiode in the parallel circuit. Therefore, the capacitor is not acting as a shunt between the bias terminal of the photodiode and ground but instead as a commonly connected parallel electronic device operating in tandem with the photodiode.

Additionally, it does not appear that a continuous and constant bias is applied to the cathode terminal of the photodetector in the Flynn disclosure. Rather, the cathode terminal of the photodetector in Flynn connected to a logic gate at 38 which is normally open until the circuit is accessed to read (dump) the charge from the capacitor. At polling, the capacitor charge is shunted to a sensing amplifier.

In summary, in contrast to the claims of the present application as amended, the capacitor in Flynn is not believed to be coupled between the photodetector AC ground and the photodetector bias terminal to provide a continuous bias to the photodetector as clearly indicated in the claims as presently amended. The capacitor in Flynn is connected in parallel with the photodetector to act as a memory element that stores information about the level which is sensed by the photodetector. The capacitor in the present invention serves to provide a continuous path to in order to shunt from the bias source to AC ground. The underlying functionality is entirely different and thus the underlying structural connections are also different. Accordingly, since the structure between the cited Flynn reference and the claims of the present invention as amended are different, Flynn cannot anticipate the present invention under § 102.

In view of the amendments and the remarks offered herein, favorable reconsideration of the rejected claims is respectfully solicited.

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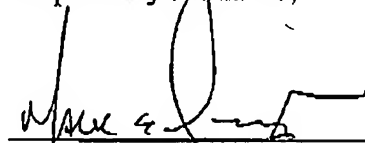
IV. CONCLUSION

Accordingly, claims 1-7 are believed to be in condition for allowance and the application ready for issue.

Corresponding action is respectfully solicited.

PTO is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our account #02-0900.

Respectfully submitted,



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